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XX.

ON SOME ALGÆ NEW TO THE UNITED STATES.

BY W. G. FARLOW.

Presented May 9, 1877.

THE present paper is a supplement to one presented to the Academy, March 9, 1875; and our object is to complete, as far as possible, the list of marine algæ found in the United States. We include a number of species which were referred to in a paper in the "Report of the United States Fish Commission" for 1875, which was intended to serve as a guide to the collection of algæ in the Government Building at the Centennial Exhibition. Some species of New England, which are soon to be described at length in another publication, are here mentioned only by name.

Of the species added to our marine flora, a number were collected at Key West and the Tortugas by Mr. F. W. Hooper, in the winter of 1876. New Californian species have been received from Dr. Anderson, of Santa Cruz; Mr. Cleveland; Mr. Hemphill, of San Diego; and Miss Lennebacker, of Santa Barbara. Several interesting forms were collected by Dr. Edward Palmer at the island of Guadeloupe and in the vicinity of San Diego, and Prof. D. C. Eaton, of New Haven, has kindly communicated species from both east and west coasts.

FLORIDEÆ.

DASYA SUBSECUNDA SUHR. K.tz. Tab. Phyc., V. XIV., Pl. 78 a. b. *D. Callithamnion* Harv. Farlow, Proc. Am. Acad., 1875. San Diego, Cleveland; Santa Barbara, Dr. Dimmock. This minute species, which is not uncommon in Southern California, has the habit of *C. Wurdemanni* Bail., but the ramuli are robust and more or less secund, while in *C. Wurdemanni* they are attenuated and dichotomous, branching at wide angles. We formerly erroneously referred this species to *D. Callithamnion* Harv., being led to that conclusion by the fact that a cross-section of the stem showed four cells around a central cell, as was also the case with an authentic specimen of *D. Callithamnion* Harv. Far-

ther study shows, however, that the number of cells seen in cross-section varies from four to eight; and it may be remarked that, in most of the species belonging to the subgenus *Stichocarpus*, the number of cells is too inconstant to constitute a specific character.

DASYA TRICHOCLADOS *Mert.* var. *Oerstedii*, *J. Ag.* = *Dasya lophoclados* Mont., *Ner. Am. Bor.* II. p. 65.

TÆNIOMA CLEVELANDII, n. sp. fronde capillacea erecto-cæspitosa ad 4 pollicares; ramis flexuosis irregulariter pluries pinnatis, ramulis ad basem contractis, ultimis subulatis incurvatis; articulis subcompressis, 4 siphoniis fere ecorticatis, 2 siphoniis lateralibus marginatis; stichidiis numerosis sparsis vittæformibus tetrasporas oppositas foveantibus in apicem subacutum abeuntibus. — San Diego, Cal., Mr. D. Cleveland. — But two species of this genus are as yet known, *T. perpusillum* Ag., found by Liebmann on the west coast of Central America, and *T. macrourum* Thur., found by Schousboe at Tangier. We should naturally expect the first-named species to occur at San Diego; but, as it is described by Agardh as closely resembling *Callithamnion Rothii* in habit and mode of growth and having subfasciculate stichidia, it would hardly seem as though the plant collected by Mr. Cleveland, which has scattered stichidia, is four inches high, and has a striking resemblance to *Griffithsia tenuis* Harv., could belong to the same species. The specimen sent by Mr. Cleveland is unfortunately broken off near the base; but, judging from what was sent, there seems to be no creeping primary filament. From *T. macrourum* the present species differs in having the stichidial branches terminate in a more or less acute apex instead of two hairs. When seen in front view, the frond shows a series of articulations, each of which is composed of three subequal cells bordered on both sides by a wider cell. A cross-section is rather narrowly elliptic, and shows four subequal cells arranged round a central cell, as in many species of *Polysiphonia*; but each of the cells lying in the longer axis of the ellipse has a cell in contact with it on the outer side and of about the same size as itself, so that the short axis of the ellipse is composed of two, and the long axis of four, cells besides the central cell. In the lower part of the frond, the angles between the primary cells are filled with a small but irregular number of secondary cells.

POLYSIPHONIA SENTICULOSA Harv. This species, described in the Jour. Proc. Linn. Soc., Vol. VI. No. 24, p. 169, is apparently common along the whole Californian coast. It admits of question whether the species should not be considered a variety of *Pol. urceolata*.

POLYSIPHONIA SECUNDA Ag. Under this species is included by

Agardh *Polysiphonia pecten-Veneris*, var. *B.* Harv., of the Ner. Am. Bor. II., p. 46. The question then arises, What is the plant described in the Ner. Am. Bor. II., p. 35, as having but four siphons, and referred to *Polysiphonia secunda* Mont., said by Montagne himself, Syll. Crypt. p. 424, to be the same as *P. secunda* Ag.

POLYSIPHONIA PENNATA Ag. To this species was doubtfully referred a small *Polysiphonia* from San Diego, which seemed not uncommon on *Gelidium cartilagineum* and other large *Florideæ*. The specimens should have more properly been referred to *Polysiphonia verticillata* Harv. A single specimen received from Mrs. T. M. Allen, collected at Santa Barbara, Cal., does not seem to belong either to *P. verticillata* or to *P. dictyurus*, if the figure in the Tab. Phyc. is to be trusted, and may belong to *Polysiphonia pennata*.

POLYSIPHONIA THYRSIGERA J. Ag. Key West, Mr. F. W. Hooper; Nassau, Miss Minns.

POLYSIPHONIA DICTYURUS J. Ag. San Diego, Cal., Mr. D. Cleveland. A single specimen, which we supposed to be new and to which we gave the manuscript name of *P. Clevelandii*, seems to be a variety of *P. dictyurus*, in which the ramuli are very regularly pinnate, and the ultimate ramuli all beautifully recurved. The number of cells in cross-sections of the larger branches is ten.

ACANTHOPHORA MUSCOIDES Ag. The true *A. Delilei* has never been found in this country. The species given by Harvey with that name, in the Ner. Am. Bor., is *Acanthophora muscoides*, Ag. and the name *A. Delilei* should have been suppressed in the Proc. Am. Acad., 1875.

RICARDIA MONTAGNEI Derbes. San Diego, Cal., Mr. Cleveland; Santa Barbara, Miss Lennebacker. This curious little plant is rarely over quarter of an inch high, and grows in small clusters on the concave tips of species of *Laurencia*. The Californian specimens on *L. virgata* resemble, in all respects, those from the Mediterranean, except that they are rather more luxuriant.

LAURENCIA BRONGNIARTII J. Ag. Key West, Mr. F. W. Hooper. One of the more beautiful species of the genus, and which bears a striking resemblance to *Amansia multifida*.

LAURENCIA TUBERCULOSA J. Ag. Prof. Agardh regards *Laurencia gemmifera* Harv., as a variety of this species.

LAURENCIA INTRICATA Lam. Key West, Mr. F. W. Hooper. A species forming dense cushions, and resembling closely the figure in Kütz. Tab. Phyc., Vol. XV., tab. 61, was collected by Mr. Hooper.

LAURENCIA SPECTABILIS, Post. & Rupr. Prof. Agardh is inclined

to keep this species distinct from *L. pinnatifida*, with which it was united by Harvey.

ERYTHROCYSTIS GREVILLEI J. Ag. Epicr. = *Lomentaria?* *saccata* J. Ag. Sp. p. 738.

DELESSERIA WOODII J. Ag. Santa Barbara, Cal., Miss Lennebacker.

NITOPHYLLUM VIOLACEUM, J. Ag. Epicr. This is the species described in the Ner. Am. Bor. and Proc. Am. Acad., 1875, as *Nitophyllum laceratum* Grev.

NITOPHYLLUM LATISSIMUM Harv. Under this species should be included *Nit. areolatum* Eaton mscr. of the Rep. U. S. Fish Comm., 1875.

NITOPHYLLUM MULTILOBUM J. Ag. Epicr. Golden Gate, Cal., Berggren. We have never seen this species, which, according to Prof. Agardh, differs from all other species in having large transverse sori.

NITOPHYLLUM SPECTABILE Eaton. California.

EUCHEUMA ACANTHOCLADUM J. Ag. Epicr. = *Chrysomenia acanthoclada* Harv.

RHABDONIA RAMOSISSIMA J. Ag. Epicr. = *Chrysomenia ramosissima* Harv., Ner. Am. Bor.

The species of *Corallineæ* found on the coast of the United States are in a state of great confusion, and it will probably be some time before they are clearly made out. One great difficulty in the way is the uncertain characters by which the genera are at present constituted. In this connection, we only wish to call attention to the forms found on our coast, giving the names under which they are commonly described, without meaning to indorse the specific value assigned by different writers. We are greatly indebted to Dr. Ed. Bornet for notes and suggestions with regard to our species, especially the *Corallineæ* and *Squamariæ*.

CORALLINA PISTILLARIS Mont. A small coralline, nearly related to this species, perhaps identical with it, has been found at Santa Cruz, Cal., by Dr. Anderson.

AMPHIROA ORBIGNIANA Harv. The common *Amphiroa* from California, which is usually distributed as *Amphiroa Californica*, D.cne., does not, according to Dr. Bornet, conform to the type of that species, but more properly belongs to *Ampk. Orbigniana*. Harv. The species is incorrectly referred in Proc. Am. Acad., 1875, p. 364, to *Arthrocardia frondescens*, Aresch., to which some of the broader forms have a not very remote resemblance.

AMPHIROA VERTEBRALIS D.cne. This form, collected in Oregon by Rev. E. Hall, in 1871, resembles the species described by Postels and Ruprecht as *Amph. tuberculosa*, Illust. Alg., p. 20, T. XL. fig. 100, and it may be asked whether it is not really the same species.

AMPHIROA TRIBULUS Lam. A West-Indian species also found at Key West by Mr. F. W. Hooper.

AMPHIROA FRAGILISSIMA Lam. In the Ner. Am. Bor., Harvey mentions both *Amph. fragilissima* Lam., and *Amph. debilis* K.tg., as found at Key West. The *Amph. debilis* of Kützing is, however, only a synonyme for *Amph. fragilissima* Lam., while the plant referred to by Harvey is a much larger species, possibly *Amph. cuspidata* Lam.

LITHOTHRIX ASPERGILLUM. J. E. Gray. San Diego, Cal., Mr. Cleveland; Santa Barbara, Miss Lennebacker; Santa Cruz, Dr. Anderson. This species seems to be tolerably common along the California coast. It was quoted in the Rep. U. S. Fish Com., 1875, under the name of *Amphiroa nodulosa* K.tg. Judging from the figure in the Jour. Bot., 1867, there can be no doubt that this is the species there described; but it is difficult to understand the grounds for separating the genus *Lithothrix* from *Amphiroa*.

MELOBESIA AMPLEXIFRONS Harv. A species which appears common on *Zostera*, *Gelidium cartilagineum*, and other algæ from Santa Cruz, Cal., southward. The conceptacles are immersed so that the frond appears punctate.

MELOBESIA LENORMANDI Aresch. San Diego, Cal., Mr. D. Cleveland. A *Melobesia* occurs at Wood's Hole, Mass., which is probably also to be referred to this species.

MELOBESIA LEJOLISII Rosanoff. Common on *Zostera* at Nahant, Mass.

LITHOTHAMNION POLYMORPHUM Aresch. Very common from Boston northward, forming purple crusts on the rocks in tide pools. Also found at San Diego, Cal.

LITHOTHAMNION FASCICULATUM Aresch. Dredged in several places near Eastport, Me.

PETROCELIS CRUENTA Ag. Common on rocks from Nahant, Mass., northward; also at Santa Cruz, Cal. It has, as yet, been found only with tetraspores.

PEYSSONNELIA RUBRA (Grev.) J. Ag. The species referred to in the Rep. U. S. Fish Comm., 1875, under the name of *P. atro-purpurea* Crn., belongs more properly to *P. rubra*.

PEYSSONNELIA DUBYI Crn. San Diego, Cal., Mr. Cleveland. Although *P. rubra* is common at Key West, it is doubtful whether

P. Dubyi occurs there. We have also found sterile specimens of a *Peyssonnelia* at Eastport, Me., which is probably referable to *P. Dubyi*. *P. imbricata*, K.tg., in the absence of fruit, will remain a doubtful species.

CRUORIA PURPUREA, Crn. San Diego, Cal., Mr. Cleveland.

CRUORIELLA ARMORICA, Crn. San Diego, Cal., Mr. Cleveland.

GALAXAURA (MICROTHOE) LAPIDESCENS Lam. Key West, Mr. F. W. Hooper.

GALAXAURA RUGOSA, Kütz. Key West, Mr. F. W. Hooper.

Liagora farionicolor, and *L. Cayohuesonica* Melville, Jour. of Bot., Sept., 1875, do not seem to be admitted as species by Agardh in his *Epicrisis*.

NEMALION? ANDERSONII, n. sp. frondibus congregatis lubrico-cartilagineis simplicibus vel sparse furcatis; ramis primum subcompressis solidis demum cavis cylindraceis ad 6-8 pollicares altitudine, plerumque subæqualibus ramulis dense cinctis; ramulis simplicibus vel furcatis; antherozoides ad cellulas externas fasciculatis; cystocarpiis? — Santa Cruz, Cal., Dr. C. L. Anderson. — This species, first found by Dr. Anderson, is variable in appearance. When young, the fronds are solid, and consist of an undivided axis, from which are given off short lateral branches in all directions. When older, the main axis forks once or twice, as do also the ramuli; and, still later, the main axis becomes swollen and hollow, and not unfrequently perforated. The substance is always lubricous and cartilaginous, and the color is a blackish-purple. The frond is composed of closely interwoven longitudinal filaments, from which are given off at right angles dichotomous moniliform filaments. We have never found the cystocarps or tetraspores of this species, and consequently there must remain some doubt with regard to the genus. Antherozoids are abundant, and nearly cover the surface of some specimens. As we have not been able to find traces of cystocarps, it is probable that the present species is dioecious, and, in that respect, different from other species of *Nemalion*. In aspect it not unfrequently resembles a coarse *Chordaria*, and in its later stages bears a certain resemblance to some forms of *Halosaccion ramentaceum*. As ordinarily seen, it is easily recognized by the rather thick main axis, closely beset with short ramuli of nearly equal length. The ramuli are often distorted by the parasite *Streblonema fasciculatum* Thuret. *Nemalion virens*, Ag., of the Pacific coast of Mexico, might be expected to occur in California. The description of that species, however, does not at all apply to the plant found by Dr. Anderson.

PLOCAMUM VIOLACEUM, n. sp. fronde anguste lineari ad 5-6 pol-

licares altitudine irregulariter pinnata; ramis ecostatis præcipue ad apices flexuosis; pinnis alterne 2-4, plerumque 3, pinna inferiori subuliformi sæpe recurvata pinnas superiores decomposito-pinnatas superante; sphærosporis biseriatim ad 2-3 furcatis apices ordinatis. Color purpureus. — Santa Cruz, Dr. C. L. Anderson; San Diego, Mr. D. Cleveland. — The present species is said by Dr. Anderson to inhabit rather deep water. It resembles *Plocamium coccineum* in having the pinnæ arranged alternately in threes and fours, but differs in having the lower pinna larger than the others and slightly recurved. In the length of the lower pinna, the species approaches *P. cornutum* which, however, does not have pinnæ arranged in threes or fours. In the flexuous character of the branches, the species resembles *Pl. coccineum* var. *flexuosum* Harv., which is considered by Agardh a variety of *Pl. leptophyllum* Kütz. We have compared the present species with specimens of *Pl. coccineum* var. *flexuosum*, named by Harvey, and find it to differ in color and substance and in the large lower pinna: The plant adheres slightly to paper, and is of a dark purple color, unusual in species of the genus.

CORDYLECLADIA CONFERTA (Schousb.) Mont. San Diego, Cal., Mr. Cleveland; Santa Barbara, Miss Lennebacker. Not an uncommon species of Southern California, but sometimes distributed as a species of *Gracilaria*.

SARCOPHYLLIS CALIFORNICA J. Ag. In his *Epicrisis*, Prof. Agardh separates this species from *S. edulis*, to which species California specimens had been previously referred.

FARLOWIA CRASSA J. Ag. Santa Cruz, Cal., Dr. Anderson; Oregon, Rev. E. Hall.

FARLOWIA COMPRESSA J. Ag. Santa Cruz, Dr. Anderson; Santa Barbara, Miss Lennebacker; San Diego, Mr. Cleveland.

CRYPTOSIPHONIA WOODII J. Ag. Santa Cruz, Cal., Dr. Anderson.

KALLYMENIA CALIFORNICA, n. sp. fronde carnosa radiatim proliferâ demum irregulariter fissa inferiori parte costata; proliferationibus flabelliformibus in stipitem basi attenuatis sæpe phyllis marginalibus minutis fimbriatis; cystocarpiis in media fronde numerosis immersis. — Santa Cruz, Cal., Dr. Anderson. — This species was found by Dr. Anderson thrown up from deep water in company with *Constantinea Sitchensis*, which it resembles in texture and color. In fact, until the tetraspores have been discovered, it will not be possible to affirm that this is not a *Constantinea*, although the absence of a distinct stipe would lead one to place the plant in the genus *Kallymenia* rather than *Constantinea*. We first supposed the plant to be *Kallymenia? phyllophora*

J. Ag.; but having sent a specimen to Prof. Agardh, he has decided that it is not the species previously sent him from Vancouver's Island. The fronds are fixed by a disk, from which they rise, or more probably expand out horizontally, for five or six inches. As most commonly seen, they resemble a species of *Opuntia* with fan-shaped or obovate joints, which are usually fringed with small leaflets on the margin. All the lower parts are distinctly costate. The color is a deep red, which becomes very dark. The cystocarps are densely scattered in the central part of the upper portion of the frond. In none of the specimens which we have received is the fruit ripe; but, using the common expression adopted in this order, there is a compound nucleus, not a simple one, as found in *Prionitis*, *Schizymenia*, and other allied genera.

PHYLLOPHORA CLEVELANDII Farlow. Tetraspores in oval shaped nemathecia in the upper part of frond.

GYMNOGONGRUS LEPTOPHYLLUS, Ag. California, Dr. Anderson. Under this name Prof. Agardh distinguishes the species commonly distributed as *Gymnogongrus Griffithsia* of our west coast, in which the cystocarps are immersed, or nearly so. There is still another *Gymnogongrus*, not uncommon in California, in which the cystocarps project hemispherically on one side of the frond, and which, with little doubt, is *G. tenuis*, Ag. *G. linearis* Ag. was accidentally omitted from the list in Proc. Am. Acad., 1875.

CHONDRUS CANALICULATUS Ag. California in several places. It is doubtful whether *C. affinis* Harv. is really distinct from this species.

CRYPTONEMIA OBOVATA J. Ag. Santa Cruz, Cal., Dr. Anderson.

CRYPTONEMIA DICHOTOMA J. Ag. A single specimen of what seems to be this species was collected by Mr. D. Cleveland at San Diego.

PRIONITIS ANDERSONIANA, Eaton mscr. Santa Cruz, Dr. Anderson.

PRIONITIS? CLEVELANDII, n. sp. fronde coriacea substipitata repetitive flabellatim prolifera inferiori parte subcostata demum irregulariter perforata; proliferationibus a disco aut intra marginem exeuntibus; cystocarpis —? — San Diego, Mr. D. Cleveland. — Of this striking species we have seen but a single sterile specimen, from which it is of course impossible to determine the genus with certainty. We at first supposed it to be the same as the plant to which we have given the name of *Kallymenia Californica*. The resemblance, however, is only external, for the structure of the frond is exactly that of *Prionitis*. If the fruit of the present species should show that it really belongs to

the genus *Prionitis*, it may be readily distinguished by its flabellate habit. In some respects, it resembles in form *Iridæa lacera*, Post. and Rupr. Ill., p. 17.

SCHIZYMENIA? COCCINEA Harv. Santa Cruz, Cal., Dr. Anderson; San Diego, Mr. Cleveland. To this species, described in Jour. Proc. Linnean Soc., Vol. VI., No. 24, is doubtfully assigned several large specimens from California.

GRATELOUPIA CUTLERIÆ, Binder. Santa Cruz, Cal., Dr. Anderson; San Diego, Mr. Cleveland. This very variable species has undoubtedly received several specific names, and it must be said that even *Gr. Gibbesii* Harv., of our southern coast, is not decidedly distinct. If one is to found species of *Grateloupia* on the outlines of the frond alone, it will be easy to make almost any number of species out of *Gr. Cutleriæ*.

HALYMENIA DECIPIENS, J. Ag. Key West, Mr. Hooper.

NEMASTOMA CALIFORNICA, n. sp. fronde gelatinosa roseo-purpurea tereto-compressa basi alternata irregulariter pinnata; pinnis pinnatis; pinnulis ultimis subuliformibus; cystocarpis in corticali parte frondis numerosis. — Santa Cruz, Dr. Anderson; Santa Barbara, Miss Lennebacker. — This plant, which we formerly referred to *Halymenia ligulata* under the name of variety *Californica*, differs in the structure of the cortical filaments from any species of *Halymenia*; and granting that the genera *Halymenia*, *Nemastoma*, *Gloiosiphonia*, and *Calosiphonia*, are nearly related to one another, the present species, owing to the fact that the central siphon can be traced only at the tips of the branchlets, cannot well be included in *Gloiosiphonia* or *Calosiphonia*, nor in *Halymenia*, since the cortical filaments are not united into a membrane, as is more or less the case with the species of that genus. In aspect the plant resembles rather closely *Gloiosiphonia capillaris*, and some of the older specimens are not very unlike narrow forms of *Halymenia ligulata*. It seems to be a connecting link between the genera *Gloiosiphonia* and *Halymenia* as far as the structure of the frond is concerned. When freshly mounted, the species is of an agreeable purplish-rose color; but, as usually received from California, it is brownish, and distorted by too heavy pressure.

GRIFFITHSIA OPUNTIOIDES Ag. Santa Cruz, Cal., Dr. Anderson.

GRIFFITHSIA BORNETIANA Farlow. In the Ner. Am. Bor., Harvey refers the common *Griffithsia* of the North American coast to *Griffithsia corallina*, Ag., with some doubt, and describes a variety *globifera* and a variety *tenuis*. In his *Epicrisis*, Agardh adopts the manuscript name of Harvey, *G. globifera*, to designate the American species.

Harvey states, however, that his name, *G. globifera*, was only intended to apply to what he afterwards called a variety of *G. corallina*. We have ascertained by examination of the living plant, which is common in Long Island Sound, that there is but one species which comprises all the forms described by Harvey under the name of *Griffithsia* in the Ner. Am. Bor. The so-called var. *globifera* is merely the male plant, of which the terminal cell is enlarged and globose, and has the antherozoids borne in the form of a cap on the summit, in which respect it differs from any other species of the genus. The male plant is always shorter and stouter than the female plant. The var. *tenuis* of Harvey is usually tetrasporic, and the tetraspores are borne in whorls of several consecutive joints. In another place we shall have more to say on the present species; and we only need remark, in this connection, that, under *G. Bornetiana*, we include all the forms erroneously referred by Harvey in the Ner. Am. Bor. to *Griffithsia corallina*, and by Agardh in his *Epicrisis* to *G. globifera*, Harv., which was the name applied by Harvey himself to what is really only the male plant.

CALLITHAMNION LEJOLISEA, n. sp. fronde minuta repente ad nodos *Amphiroæ* parasitica; filis verticalibus superne nudis in parte inferiore ramulosis; antheridiis ovalibus ad ramos inferiores terminalibus; cystocarpiis (favellis) ad ramos inferiores terminalibus; sphærosporis triangulatim divis in ramulis lateralibus terminalibus. This very small species of *Callithamnion*, which is seldom an eighth of an inch high, was found growing on the joints of an *Amphiroa* received from San Diego, Cal. It is probably not rare on the coast of California, but from its small size escapes detection. It resembles perfectly, except in the cystocarps, *Lejolisea Mediterranea*, which grows upon *Udotea flabellata*. In both species the frond is procumbent and attached by disk-like cells, and the erect filaments give off at the base a few lateral branches, upon whose tips the organs of fructification are borne. In both species the antheridia are oval, and the tetraspores tripartite and more or less clustered. In the one case, however, the fruit is a true favella, and the species must be considered a true *Callithamnion*, while in the other the fruit is more complicated, having a special covering, and with the spores arranged not in indefinite masses, but around a central placenta.

CALLITHAMNION DASYOIDES J. Ag. (*Call. ptilophora* Eaton mscr.). California.

CALLITHAMNION ARBUSCULA, var. *Pacificum*, Harv., Jour. Proc. Linn. Soc., Vol. VI., No. 24 = *C. Pikeanum*, Harv., Ner. Am. Bor. 11, p. 230.

CALLITHAMNION HETEROMORPHUM J. Ag. California.

CHANTRANSIA EFFLORESCENS, Thuret. (*Callithamnion* Ag.). On *Rhodymenia*. Gay Head, Mass.

DESCRIPTION OF A NEW ALGA OF CALIFORNIA.

BY PROF. DANIEL C. EATON, OF YALE COLLEGE.

NITOPHYLLUM SPECTABILE, fronde subsessili, erecta, maxima, costata atque ut videtur avenia, oblonga, profunde pinnati-lobata; parte media duplo vel triplo latitudine loborum, sæpe in lobum terminalem magnam producta; lobis laciniisve crebris, patulis, liguliformibus sæpius integris, nunc apice lobatis vel profundius partitis, margine vix undulata, rarissime phylla minima obovata e margine vel e disco emittentibus; soris et coccidiis per totam frondem creberrime conspersis.

Hab. ad Sanctam Crucem, California: legit Anderson, Aug.-Sept. 1874.

Among the largest species of the genus, often two feet long, or even longer, and, in the spread of the lobes, two-thirds as broad. The lobes are so crowded as to overlap each other, and are 6-8 inches long and about an inch wide, lanceolate or strap-shaped, rather obtuse, mostly entire, but now and then two to three forked, or slightly dichotomously lobed. One specimen bears numerous minute obovate proliferations along the margin, and sparingly on the disk, especially where there has been some injury. No veins visible. The tetraspores are in oblong or irregular sori, thickly scattered all over the frond; and in the fruiting, plant mature and young coccidia are sprinkled with almost equal profusion. The substance is rather firm, but thin, and not adhering very well to paper, except in the younger portions. I find but two layers of cells in the sterile portions of the lamina. The color is a dull purplish-red, more rosy in the newer portions.